

REMARKS/DISCUSSION OF ISSUES

Summary

Claims 1-20 are pending in the application. Claims 1-20 are rejected. Claims 3, 6 and 7 are objected to. Claims 8 and 9 are allowed.

Claims 1-5, 8-14 and 17-20

Claims 1-5, 8-14 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura U.S. patent 6,008,871 in view of Steiner et al. U.S. 5,748,828 (herein 'Steiner').

Okumura discloses a transflective liquid crystal display device comprising a liquid crystal panel (103-106), a polarizer (101) disposed on one side of the liquid crystal panel, a reflective polarizer (108) disposed on the opposite side of the liquid crystal panel, and a backlight assembly (109), whose light source may comprise an array of LEDs (col. 11, line 20).

As acknowledged by the Examiner, Okumura does not disclose that the LEDs have different light emission wavelengths.

Steiner discloses a backlight for use in a flat panel display backlight consisting of three components, (1) a collimating means, which collimates white light and directs the light at an angle to the surface of the flat panel display, (2) diffraction means which angularly separates the white light into red, green and blue components, and (3) light directing means, for focusing the red, green and blue light components onto the individual red, green and blue color subpixels of the LCD in an aligned fashion.

Steiner also discloses that the light source which provides white light to the collimating means may be provided by three LEDs, one red, one green and one blue.

However, neither Okumura nor Steiner teach or suggest an assembly in which a control circuit for the display device also drives luminous fluxes of the light-emitting diodes in dependence upon an image to be displayed by the display device, as clearly called for by independent claims 1, 8, 9, 17 and 19.

The Examiner has stated that Okumura discloses that the control circuitry also drives the luminous fluxes of the LEDs in dependence on the displayed image, citing col. 10, lines 14-45 of the reference.

However, the cited passage merely points out that the luminance factor of the backlight assembly may be changed by changing the density of the light diffusing elements 504. Since the light diffusing elements were provided by printing white paint (col. 9, lines 65 and 66), their density cannot be varied in dependence on the displayed image.

Moreover, Applicant's claims call for the control circuit to drive the luminous fluxes of the light-emitting diodes, not the density of any light diffusing elements, in dependence upon an image to be displayed by the display device.

Accordingly, claims 1-5, 8-14 and 17-20 are patentable over the combination of Okumura in view of Steiner, and the rejection is in error and should be withdrawn.

Claims 6 and 15

Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura in view of Steiner as applied to claims 1 and 2, and further in view of what was well-known

in the art, as exemplified by Epstein et al. U.S. patent 5,608,550 (herein 'Epstein').

Epstein discloses that LEDs operate efficiency in the range of about 5-10 lumens per watt (col. 3, lines 38-40). However, Epstein does not teach anything regarding the operational conditions for an LED, e.g., at what wattage an LED is operated. Thus, it is not possible to determine from Epstein's disclosure the actual lumen output of an LED.

Accordingly, claims 6 and 15 are patentable over the combination of Okumura in view of Steiner and Epstein, and the rejection is in error and should be withdrawn.

Claims 7 and 16

Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura in view of Steiner as applied to claims 1 and 2, and further in view of what was well-known in the art, as exemplified by Uchiyama U.S. patent 6,448,663.

Uchiyama discloses an array of LEDs (50) mounted on a printed circuit board (90). See, e.g., Fig. 6A.

Without conceding the patentability per se of these claims, claims 7 and 16 are nevertheless patentable by virtue of their dependency, indirectly, on claim 1, for the reasons advanced above.

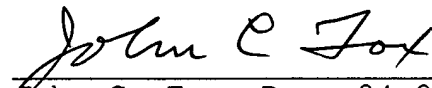
Accordingly, claims 7 and 16 are patentable over the combination of Okumura in view of Steiner and Uchiyama, and the rejection is in error and should be withdrawn.

Conclusion

In conclusion, Applicant respectfully requests that

the Examiner withdraw the rejections and objections of record, allow all the pending claims, and find the application to be in condition for allowance.

Respectfully submitted,

A handwritten signature in cursive script, reading "John C. Fox".

John C. Fox, Reg. 24,975
Consulting Patent Attorney
315-521-2627